

Ariba Technologies, Inc. Catalog Interchange Format (CIF) 2.1 Specification

Technical White Paper

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Catalog Interchange Format (CIF)

2.1 Specification

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1.0 Catalog Interchange Format (.CIF)

The Catalog Interchange Format (.CIF) is the specification that defines the file format for the exchange of data between buyers and suppliers. The CIF format is an open specification that is flexible, robust, secure, and reusable. There are two components of the CIF as outlined below.

- Item CIF
- Relationship CIF

1.1 Item CIF

The Item CIF defines the file format for item descriptions, company specific pricing, units of measure, supplier part numbers, manufacturer, manufacturer part numbers as well as pointers (URL's) to the supplier's and/or manufacturer's Product Data Sheets on their electronic catalogs. The Item CIF also contains the commodity classification code (see section **2.0 CIF Standards**) for each item so that they can be properly mapped into the buyer's commodity code structure.

The Item CIF has three parts:

- File Header
- Line data
- File Trailer

1.1.1 File Header

The File Header data defines the CIF type (item vs. relationship), version (currently 2.1), replace mode (F = full replace; I = incremental replace), mapping code format (SPSC), and currency. It also identifies the starting point for the item data stream via the "DATA" tag. Lines 1-6 of the Item CIF are:

1. CIF_I_V2.1
2. LOADMODE: F (default)
3. CODEFORMAT: SPSC
4. CURRENCY: USD (default)
5. DUNS: TRUE (true/false)
6. DATA

1.1.2 Line data

The Line data defines the specific fields of item information and applies to products as well as services. In the case of services, some of the data fields will be left blank. Also, note that the Line data should be **comma (,) delimited**. A "carriage return" separates item records. In addition, if the item description has embedded commas, then enclose the description in double quotes. If an item description has a double

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quote (ex. for inches) in it, the double quote should be followed by another double quote. The following tables provide more details regarding the Line data:

- Table 1: Item CIF – Line data format
- Table 2: Item CIF – Notes
- Table 3: Item CIF - Validation Rules
- Table 4: Sample Item CIF Data

Table 1. Item CIF – Line data format

Description	Data type	Max Length	Sample Data
Supplier ID	Varchar	10	1234
Supplier Part ID	Varchar	25	XPS-M166
Mfg. Part ID	Varchar	25	XPS-M166
Item Description	Varchar	240	Dimension XPS
SPSC Code	Varchar	40	5045990405
Unit Price / Rate	Real		1259.59
Units of Measure	Char	40	EA
Lead Time	Integer		3
Mfg. Name	Varchar	80	Dell Computer
Supplier URL	Varchar	240	http://...
Mfg. URL	Varchar	240	http://...
Market Price	Real		1599.49

Table 2. Item CIF – Notes

Description	Comments
Supplier ID	Customer's Supplier Id or DUNS Number.
Supplier Part ID	Supplier part number.
Mfg. Part ID	Mfg. Part number.
Item Description	Description of the product or service. Should include mfg. Model#, mfg. Standard description, and additional information (if applicable).
SPSC Code	SPSC code for the item (<i>see CIF Standards section</i>).
Unit Price/Rate	Customer specific pricing for this item.

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Units of Measure	ANSI ASC X12 (<i>see CIF Standards section</i>).
Lead Time	Measured in days (round up).
Mfg. Name	Name of the manufacturer.
Supplier URL	Supplier web-based product data sheet address for this item (if available).
Mfg. URL	Mfg web-based product data sheet address for this item (if available).
Market Price	Standard corporate pricing.
Note	Line data should be comma (,) delimited.

Table 3. Item CIF – Validation Rules

Description	Action
Supplier ID	IF Supplier ID is blank or invalid THEN Reject the record.
Supplier Part ID	IF Supplier Part ID is blank THEN Reject the record.
Mfg. Part ID	None.
Item Description	IF Item Description is blank THEN Reject the record.
SPSC Code	IF SPSC Code is blank or invalid THEN Reject the record.
Unit Price/Rate	IF Unit Price/Rate is not numeric THEN Reject the record.
Units of Measure	IF Units of Measure is not valid ANSI ASC X12 THEN Reject the record.
Lead Time	IF Lead Time is not numeric THEN Reject the record.
Mfg. Name	None.
Supplier URL	IF Supplier URL is not formatted correctly THEN Reject the record.
Mfg. URL	IF Mfg. URL is not formatted correctly THEN Reject the record
Market Price	IF Market Price is not numeric THEN Reject the record.

1.1.3 File Trailer

The File Trailer defines the “end of data” marker, date & time stamp, and item count:

1. ENDOFDATA

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2. MM/DD/YY HH:MM:SS
3. ITEMCOUNT: Total Number of Line Items in File

1.1.4 Sample Item CIF Data

Table 5 lists a sample data file for the Item CIF that has the following characteristics:

- Double quotes for item descriptions since they have embedded commas;
- Carriage return at the end of each item record; Note: The item records are wrapping to the next line due to printer constraints. Only include a carriage return at the end of each item record;
- Two line items (i.e. records) in the file.

Table 5. Item CIF – Sample Data

```
CIF_I_V2.1
LOADMODE: F
CODEFORMAT: SPSC
CURRENCY: USD
DATA
1234,XPS-M166,XPS-M166,"Dell Dimension XPS 166 MHz with 32KB
internal cache, 2GB hard drive, 3.5 inch, 1.44MB floppy disk drive, 17 in.
SVGA color monitor",5045990405,1259.59 ,EA,3,Dell Computer,
http://www.dell.com/products/dim/xps/indepth.htm,,1599.49
1234,LM-166,LM-166,"Latitude LM 166 MHz with 16MB FastPage RAM,
16KB internal cache,12.1 inch SVGA color TFT monitor, 1.4GB hard drive,
3.5 inch 1.44 MB floppy disk drive",5045990402,1499.99,EA,4,Dell
Computer,http://www.dell.com/products/latitude/lm/indepth.htm,,1799.99
ENDOFDATA
5/15/97 15:25:04
ITEMCOUNT: 2
```

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1.2 Relationship CIF

The Relationship CIF defines the file formats for establishing relationships between items. The objective is to define a flexible and robust approach for creating these relationships since they can exist in numerous forms. Typically, item relationships are necessary to provide important information regarding the various items required to operate a product, identify a group of items that are generally purchased together, or identify items that a person may want to consider purchasing. The Relationship CIF specifications supports required items, required items that have multiple options, bundled items, optional items, and substitutes.

There are two basic relationships defined in the current specification:

1. Parent/Child relationships (includes inheritance)

Parent/Child includes the notion of inheritance, that is, it allows grandchildren, great grandchildren, and so on. Parents can have one or more Children (1:M). Children can have one or more Parents (1:M) via multiple 1 to 1 Parent/Child associations (1:1).

2. Inter-Company relationships

Inter-Company is similar to Parent/Child, but identifies the Supplier of the parent and the child. The same notion of inheritance exists as well.

As new relationships emerge new file formats can be defined to support these relationships. Existing relationship file formats will continue to work correctly and only those items that need to take advantage of the new relationship will be impacted.

The Relationship CIF has three parts:

- File Header
- Line data
- File Trailer

1.2.1 File Header

The File Header defines the CIF type (relationship vs. item), relationship type (R1 = Parent/Child; R2 = Inter-Company), version (currently 2.1), replace mode (F = full replace; I = incremental replace), supplier, and the starting point for the data stream via the "DATA" tag. Lines 1-4 of the Relationship CIF are:

1. CIF_R1_V2.1

R1 = Parent/Child
R2 = Inter-Company

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2. LOADMODE: F
3. SUPPLIER ID: Customer's Supplier ID or DUNS Number
4. DATA

1.2.2 Line data

The Line data defines relationships between the items. **Note: Line data should be comma (,) delimited.** The following tables provide more details regarding the Line data:

- Table 6: Parent/Child Relationship CIF - Line data format
- Table 7: Parent/Child Relationship CIF - Notes
- Table 8: Parent/Child Relationship CIF - Validation Rules
- Table 9: Inter- Company Relationship CIF - Line data format
- Table 10: Inter- Company Relationship CIF - Notes
- Table 11: Inter-Company Relationship CIF - Validation Rules
- Table 12: Sample Parent/Child Relationship CIF Data
- Table 13: Sample Inter-Company Relationship CIF Data

Table 6. Parent/Child Relationship CIF-Line data format

Description	Datatype	Length	Sample Data
Parent Part ID	Varchar	25	12345-67
Child Part ID	Varchar	25	76543-21
Relationship Code	Char	1	B

Table 7. Parent/Child Relationship CIF –Notes

Description	Comments
Parent Part ID	Part ID of the Parent product or service.
Child Part ID	Part ID of the Child product or service.
Relationship Code	“B” is bundled; “M” is required, but multiple options; “O” is optional; “R” is required; “S” is substitute.
****NOTE 1****	Line data should be comma (,) delimited.
****NOTE 2****	A Parent can have one or more Children (1:M).

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****NOTE 3****	A Child can have one or more Parents via multiple 1 to 1 Parent/Child associations.
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Table 8. Parent/Child Relationship CIF – Validation Rules

Description	Action
Parent Part ID	IF Parent Part ID does not exist THEN Reject the record.
Child Part ID	IF Child Part ID does not exist THEN Reject the record.
Relationship Code	IF Relationship Code IS NOT (B,M,O,R, S) THEN Reject the record.

Table 9. Inter-Company Relationship CIF- Line data format

Description	Data type	Max Length	Sample Data
Parent Supplier ID	Varchar	9	1234
Parent Part ID	Varchar	25	abcde
Child Supplier ID	Varchar	9	9876
Child Part ID	Varchar	25	zyxw
Relationship Code	Char	1	O

Table 10. Inter-Company Relationship CIF – Notes

Description	Comments
Parent Supplier ID	Customer's Supplier ID (or DUNS Number) of the Parent product or service.
Parent Part ID	Part ID of the Parent product or service.
Child Supplier ID	Customer's Supplier ID (or DUNS Number) of the Child product or service.
Child Part ID	Part ID of Child product or service
Relationship Code	"B" is bundled; "M" is required, but multiple options; "O" is optional; "R" is required; "S" is substitute.
****NOTE 1 ****	The Line data should be comma (,) delimited.

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****NOTE 2 ****	Customer 's Supplier ID (or DUNS Number) and Part ID should be colon (:) delimited.
****NOTE 3 ****	A Parent can have one or more Children (1:M).
****NOTE 4 ****	A Child can have one or more Parents via multiple 1 to 1 Parent/Child associations (1:1).

Table 11. Inter-Company Relationship CIF – Validation Rules

Description	Action
Parent Supplier ID	IF Parent Supplier ID is not valid THEN Reject the record.
Parent Part ID	IF Parent Part ID does not exist THEN Reject the record.
Child Supplier ID	IF Child Supplier ID is not valid THEN Reject the record.
Child Part ID	IF Child Part ID does not exist THEN Reject the record.
Relationship Code	IF Relationship Code IS NOT (B,M,O,R,S) THEN Reject the record.

1.2.3 File Trailer

The Trailer defines the “end of data”marker, date/time stamp, and line count:

1. ENDOFDATA
2. MM/DD/YY HH:MM:SS
3. LINECOUNT: Total Number of Line Items in File

1.2.4 Sample Relationship CIF Data

Table 12. Parent/Child Relationship CIF- Sample Data

```

CIF_R1_V2.1
LOADMODE: F
SUPPLIER ID: 1982
DATA
12345-67,76543-21,B
11111,22222,0
22222,33333,R
88888,77777,0,66666,R,55555,S,44444,M
ENDOFDATA

```

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05/15/97 10:50:30
LINECOUNT: 4

Table 13. Inter- Company Relationship CIF – Sample Data

```
CIF_R2_V2.1
LOADMODE: F
SUPPLIER ID: 1996
DATA
1234:11111,9876:ZYXW,0
1234:11111,9876:88888,B
ENDOFDATA
05/15/97 10:50:30
LINECOUNT: 2
```

1.3 Summary

The Item CIF and Relationship CIF work together to fully define how product and service information is presented to the buyer. For many suppliers the Item CIF will be the only file that will be used. For those suppliers with products or services that are “configurable” or for which relationships are desirable, then the Relationship CIF will facilitate these combinations. In general, the Relationship CIF will support simple item relationships. More complex item relationships and configuration options are supported via other methods such as web-based quote configurators at the supplier. Both CIF formats support full or incremental updates. Full updates delete all old CIF data and replace it with the new data. Incremental updates replace only those records identified on the CIF. The frequency of CIF data delivery will depend on the commodity and will be established between the buyer and supplier.

2.0 Catalog Interchange Format (.CIF) Standards

The CIF specification is standards-based, open, and secure. The goal is to maximize reuse so that suppliers can support a consistent infrastructure when providing product information to buyers.

2.1 Standard Product and Service Codes (SPSC)

Dun & Bradstreet has developed the SPSC commodity classification system as a way to uniformly classify products and services across a broad range of suppliers. The SPSC has its origins in the SIC (Standard Industrial Classification) system and is an ANSI standard. Some of its advantages include:

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- **Hierarchical:** describes to a high degree of specificity while also allowing consolidation of product and service information.
- **Detailed:** descriptions are available at the product level.
- **Expansive:** covers services as well as MRO and production goods.
- **Universal:** accepted as a standard for procurement analysis, electronic commerce, and EDI transactions.
- **Expandable:** meets the specific needs of different industries and companies without losing the benefit of a universal code.

Buying and selling organizations benefit from uniform classification of products and services. The mutual benefits include facilitation of Internet commerce via a reusable, flexible, and commercially maintained infrastructure. In addition, consistency and reliability will reduce the overall cost structure for participating in Internet commerce.

Dun & Bradstreet provides the SPS Coding service for companies interested in utilizing the SPSC classification system. Suppliers may also code their products and services directly via the SPSC manual or SPSC searcher software. To obtain more information regarding the coding service or to obtain the SPSC manual or searcher software, please contact:

Dun & Bradstreet
888.597.4789 (Tel)
201.605.6990 (Fax)
<http://www.dnb.com>

2.2 DUNS Number

The Dun & Bradstreet DUNS numbers provides a supplier identification method that can be utilized as the standard for Internet commerce. This allows the selling organization to be consistently identified by a single unique number across all of its commerce partners and corporate customers. The value is a reduction in maintenance associated with each buying organization utilizing a different supplier identification method for each selling organization.

2.3 Units of Measure (ANSI ASC X12)

The Units of Measure standard supported by the CIF specification is the ANSI (American National Standards Institute) ASC (Accredited Standards Committee) X12.